

Curriculum vitae

Duo Xu, M.Sc.

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EDUCATION

B.S. in Biology (Major in Biological Sciences), Sep 2009 – Jun 2013
Fudan University, Shanghai, China

M.S. in Biology (Major in Biological Sciences), Aug 2013 – May 2015
the State University of New York, University at Buffalo, Buffalo, NY

Ph.D. candidate in Biology (Major in Biological Sciences), May 2015 - June 2018 (expected)
the State University of New York, University at Buffalo, Buffalo, NY

PUBLICATIONS

University at Buffalo

Xu D, Pavlidis P, Flanagan C, Blekhman R, Ruhl S, Gokcumen O.* Archaic hominin introgression in Africa contributes to functional salivary MUC7 genetic variation. *Molecular Biology and Evolution*. 10.1093. **[First author]**

-- Featured in *Sciencemag.org*, *Futurity*, among others. *Altmetric Score: 334 (99th percentile)*.

Xu D, Pavlidis P, Thamadilok S, Redwood E, Fox S, Blekhman R, Ruhl S, Gokcumen O. Recent evolution of the salivary mucin MUC7. *Scientific Reports*. 2016 Aug 25;6:31791. **[First author]**

-- Featured in *Futurity*, *Popular Science*, *Technology.org*, among others. *Altmetric Score: 139 (98th percentile)*.

Xu D, Jaber Y, Pavlidis P, Gokcumen O. **VCFtoTree**: A user-friendly tool to construct locus-specific alignments and phylogenies from thousands of anthropologically relevant genome sequences. *BMC Bioinformatics*. 18:426. **[First author]**

Eaaswarkhanth M*, **Xu D***, Flanagan C, Rzhetskaya M, Hayes G, Blekhman R, Jablonski N, Gokcumen O. Atopic Dermatitis Susceptibility Variants In Filaggrin Hitchhike Hornerin Selective Sweep. *Genome Biology and Evolution*. 8, 3240. **[*Co-first author]**

Pajic P, Lin YL, **Xu D**, Gokcumen O. The psoriasis-associated deletion of late cornified envelope genes LCE3B and LCE3C has been maintained under balancing selection since Human Denisovan divergence. *BMC Evol Biol.* 2016 Dec 5;16(1):265. [Co-author]

Earlier (undergraduate work at Fudan University)

Zeng L, Yin Y, You C, Pan Q, **Xu D**, Jin T, Zhang B, Ma H. Evolution and protein interactions of AP2 proteins in Brassicaceae: Evidence linking development and environmental responses. *J Integr Plant Biol.* 2016 Jun;58(6):549-63. [Co-author]

SKILLS & RESEARCH EXPERIENCE

Proficient in Python, Unix, R programming

- Developed a Python/Unix based bioinformatic pipeline from scratch to construct haplotype structure for thousands of individuals from 1000 Genomes.
- Compiled it into a macOS app, **VCFtoTree**, with user-friendly interface that can be used by audiences without knowing programming. The manuscript for **VCFtoTree** is published and it has already been successfully applied to multiple projects in our lab (Xu et al. 2016; Eaaswarkhanth & Xu et al. 2016; Pajic et al. 2016).
- Simulated the evolution of copy number variation in both Python and R to reveal the recurrent evolution of *MUC7* tandem repeats. (Xu et al. 2016)
- Analyzed RNA sequencing data for gene differential expression in human salivary glands.

Proficient in bioinformatics tools and handling big genomics datasets

- Proficient in SAMTools, BCFtools, bedtools, VCFtools, Plink, GATK, BWA, Kallisto, DESeq etc.
- Familiar with population genetics simulation tool MSMS.
- Worked with a combination of PacBio and Illumina data to study the structural variants in *C. albicans*.

Familiarity with molecular genetic experiments

- Performed PCR to genotype copy number variation for *MUC7* tandem repeats, and extracted the DNA for sequencing.
- Performed western blotting to measure the size of *MUC7* protein for different genotypes to tell the effect by different copy numbers.

CONFERENCE

Duo Xu, Pavlos Pavlidis, Recep Ozgur Taskent, Nikos Alachiotis, Colin Flanagan, Ran Blekhman, Stefan Ruhl, Omer Gokcumen. (2017) Archaic hominin introgression in Africa contributes to functional salivary *MUC7* genetic variation.

- *The 86th Annual Meeting of the American Association of Physical Anthropologists (2017) Podium presentation.*

Duo Xu, Pavlos Pavlidis, Colin Flanagan, Supaporn Thamadilok, Emilie Redwood, Sara Fox, Ran Blekhman, Stefan Ruhl, Omer Gokcumen. (2016) Evolution of *MUC7*: Insights into human salivary adaptation.

- *The 85th Annual Meeting of the American Association of Physical Anthropologists (2016) Poster.*

Duo Xu, Pavlos Pavlidis, Colin Flanagan, Supaporn Thamadilok, Emilie Redwood, Sara Fox, Ran Blekhman, Stefan Ruhl, Omer Gokcumen. The recent evolution of the salivary mucin *MUC7* in primates.

- *Northeastern Evolutionary Primatologists 2nd Conference (2016) Poster*

FUNDS AND AWARDS

Graduate

2017 Dissertation Fellowship from College of Arts and Sciences, University at Buffalo

2016 GSA Conference Travel Fund for the 2016 AAPA meeting at Atlanta

Undergraduate

2013 Second-class People's Scholarship (Top 15%)

2012 Silver Medal and the Special Prize "Safety Commendation" in Asian Regional Jamboree of iGEM

2012 School's Professional Scholarship

2010 School's Professional Scholarship

2010 Third-class People's Scholarship (Top 30%)